



Department of Defense

# INSTRUCTION

NUMBER 4540.7

October 12, 2004

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USD(AT&L)

SUBJECT: Operation of the DoD Engineering for Transportability and Deployability Program

- References: (a) DoD Directive 4510.11, "DoD Transportation Engineering," April 12, 2004  
(b) DoD Directive 5000.1, "The Defense Acquisition System," May 12, 2003  
(c) DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003  
(d) Joint Committee on Tactical Shelters (JOCOTAS) Brochure, "DoD Standard Family of Tactical Shelters (Rigid/Soft/Hybrid)," January 2004<sup>1</sup>

## 1. PURPOSE

Under the authority of reference (a), this Instruction implements policy, establishes procedures, and assigns responsibilities, for operating the DoD Engineering for Transportability and Deployability Program.

## 2. APPLICABILITY

This Instruction applies to the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities in the Department of Defense (hereafter referred to collectively as the "DoD Components").

<sup>1</sup> Available at <http://www.natick.army.mil/soldier/media/print/JOCOTAS.pdf>

### 3. DEFINITIONS

Terms used in this Directive are defined in enclosure 1.

### 4. POLICY

This Instruction implements policy established in reference (a).

### 5. RESPONSIBILITIES

5.1. The Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) shall:

5.1.1. Establish policies governing DoD engineering for transportability and deployability programs.

5.1.2. Ensure that effective transportability and deployability engineering techniques and procedures for new and modified systems and equipment (S/E) are incorporated into the DoD materiel acquisition process, as defined by DoD Directive 5000.1 and DoD Instruction 5000.2 (references (b) and (c)).

5.1.3. Ensure that S/E, including components and spare parts, are designed, engineered, and constructed so that required quantities can be transported and deployed efficiently and economically by existing and planned transportation assets.

5.1.4. Ensure that DoD transportability and deployability engineering procedures incorporate the increasing role of modeling and simulation in system development and testing.

5.2. The Heads of the DoD Components shall:

5.2.1. Establish engineering for transportability and deployability programs consistent with this Instruction to ensure that transportability and deployability requirements are considered in the design and development of new or modified defense materiel and equipment.

5.2.2. Designate component transportability agents and, where applicable, mode transportability agents and empower them to accomplish the following tasks. Enclosure 2 identifies the component and mode transportability agent offices.

5.2.3. Ensure the Component Transportability Agents shall:

5.2.3.1. Coordinate closely with the Surface Deployment and Distribution Command Transportation Engineering Agency (SDDCTEA) (the DoD Secretariat for the Engineering for Transportability and Deployability Program) on all transportability or deployability matters relating to more than one component.

5.2.3.2. Convene as warranted meetings of working groups within their component to exchange information, resolve problems, and recommend policy objectives when necessary.

5.2.3.3. Maintain liaison for their respective components with other DoD Components, with major commands of their respective components, and with other appropriate Government and non-government agencies in matters pertaining to transportability and deployability.

5.2.3.4. Coordinate with the other component transportability agents when their component requires changes in the design of DoD transport systems.

5.2.3.5. Coordinate with the other component transportability agents, and the Joint Staff, prior to formalizing and implementing modifications to portions of the defense transportation system that may affect its transportability characteristics.

5.2.4. Ensure the Mode Transportability Agents shall:

5.2.4.1. Prepare, coordinate, and maintain joint transportability and deployability criteria covering modes, terminals, and equipment for which their components have transportability and deployability engineering responsibility.

5.2.4.2. Monitor changes to the elements of commercial transportation systems for which they have transportability responsibility.

5.2.4.3. Coordinate changes, which may affect transportability or deployability, with other DoD Components, including the Joint Staff.

5.2.4.4. Analyze the transportability and deployability of S/E transportability problem items, as defined in enclosure 1.

5.2.4.5. Approve S/E transportability problem items, as defined in enclosure 1, that meet the transportability and deployability requirements of their capabilities documents.

5.2.5. Ensure Component Materiel Developers shall:

5.2.5.1. Design, develop, procure, and field systems that meet the requirements of the DoD Engineering for Transportability and Deployability Program.

5.2.5.2. Inform their component and/or mode transportability agent(s) of any system that is identified as a transportability problem item (see enclosure 1), and follow their component's procedures for obtaining transportability approval and/or certification.

5.2.5.3. Reconcile any system incompatibilities and/or non-concurrences identified through coordination with the appropriate mode transportability agents prior to the next acquisition Milestone review.

5.2.5.4. Ensure that adequate testing is conducted to perform the following:

5.2.5.4.1. Verify that the S/E meets the transportability requirements of the capabilities documents.

5.2.5.4.2. Verify proper fit of the S/E on required transporters.

5.2.5.5. In coordination with the appropriate mode transportability agent(s), incorporate modeling, simulation, and other Virtual Proving Ground (VPG) technologies where it can save testing time and/or funding instead of physical transportability testing.

5.2.5.6. Make available test and evaluation reports for use in certifying that the S/E meets the transportability requirements, and for use, if necessary, in developing transportability guidance and procedures.

5.2.6. Ensure the respective Combat Developers and/or User Representatives shall:

5.2.6.1. Annotate the minimum acceptable transportability and deployability requirements for all S/E for both strategic and tactical deployment and transport in capabilities documents. Transportation assets available, tools, personnel, materials handling equipment available for disassembly and re-assembly, time required for preparation for transport and to become operational after transport, and time required for force deployment shall be considered in establishing S/E requirements.

5.2.6.2. Annotate these requirements as key performance parameters when failure to meet them shall prevent the S/E from accomplishing its intended mission.

5.2.6.3. Request the appropriate mode transportability agent(s) to conduct deployability analyses no later than the System Development and Demonstration phase of the acquisition cycle to establish a baseline for the effect that each alternative for meeting the S/E's requirements has on force deployment.

5.2.6.4. Staff new or revised S/E transportability and deployability requirements with the appropriate mode transportability agent(s).

5.2.7. Ensure the Testers shall:

5.2.7.1. Support the materiel developer, when required, with transportability testing capabilities (both technical and, when appropriate, operational testing) to include modeling, simulation, and other VPG technologies.

5.2.7.2. Ensure that the S/E can be loaded (proper fit) and unloaded by appropriate technical and operational personnel on required transporters.

5.2.7.3. Develop test reports and/or evaluation reports for use in certifying S/E for transport, when required, and for use in developing transportability guidance and procedures.

5.2.8. Ensure the Evaluators shall:

5.2.8.1. In coordination with the mode transportability agent(s), ensure transportability testing is conducted to adequately evaluate the transportability requirements of the S/E.

5.2.8.2. Evaluate the end-item, in its tactical and packaged or shipping configurations, as well as associated support equipment and test, measurement, and diagnostic equipment, to ensure it is deployable.

5.2.8.3. Evaluate the ability of the transportation asset to carry the load.

5.2.8.4. Evaluate the ability of the transportation network and current bridging (including tactical bridging) to support the weight and dimensions of the new system in the required operational environment.

5.3. The Director, Defense Logistic Agency (DLA), shall ensure that the Directors of the DLA Centers coordinate all policy matters relative to transportability and deployability in DLA Supply Center contracts.

5.4. The Director, Defense Contract Management Agency (DCMA), shall:

5.4.1. Provide appropriate guidance to Defense Contract Management Districts (DCMDs) relative to transportability and deployability.

5.4.2. Coordinate all policy matters relative to transportability and deployability in DCMA contracts with the component transportability agents.

5.4.3. Establish liaison between DCMDs, the other DoD Components, and the DLA Supply and Support Centers in performing transportability and deployability functions.

5.5. The Secretary of the Army shall:

5.5.1. Ensure that the Assistant Secretary of the Army for Acquisition, Logistics, and Technology provides policy guidance for the Army Engineering for Transportability and Deployability Program.

5.5.2. Authorize the Deputy Chief of Staff for G-4 general staff oversight for the Army's Engineering for Transportability and Deployability Program.

5.5.3. Ensure the Commander, Surface Deployment and Distribution Command, shall:

5.5.3.1. Serve as the Army Transportability Agent and the DoD Transportability Agent for all S/E and matters requiring multi-component coordination.

5.5.3.2. Coordinate DoD transportability and deployability interest in common-user land transportation programs with other DoD Components, and Federal, State, and appropriate overseas agencies, and integrate the needs of the DoD Components into these programs.

5.5.3.3. Serve as the single DoD manager for military traffic, land transportation, and common-user ocean terminals and coordinate the land transportation, inland waterway, logistics-over-the-shore, containers-over-the-shore, and ocean terminals portion of the DoD Engineering for Transportability and Deployability Program.

5.5.4. Ensure that the Director, SDDCTEA, shall:

5.5.4.1. Prepare, coordinate, and maintain the DoD Directive implementing the DoD Engineering for Transportability and Deployability Program within the Department of Defense.

5.5.4.2. Serve as the Land Mode Transportability Agent for the Department of Defense.

5.5.4.3. Serve as the single point of contact for Army agencies in conducting transportability engineering and deployability analyses, and providing transportability and/or deployability guidance and assistance.

5.5.4.4. Provide all transportability approvals to the Army developing and procuring agencies and provide land transportability approvals to other DoD Components.

5.5.4.5. Review capabilities documents, specifications, and other requirements documents to assure that transportability and deployability are sufficiently addressed for systems to meet their mission requirements.

5.5.4.6. Prepare and publish guidance containing transportation procedures for land transportation and common-user ocean terminals, and for transport of newly acquired or modified Army equipment.

5.5.4.7. Provide DoD representation on the Association of American Railroads' (AAR) Open Top Car Loading Rules Committee and obtain approval of loading drawings for inclusion in the AAR "Rules Governing the Loading of Commodities on Open Top Cars."

5.5.4.8. Manage data collection, validation, input, and dissemination for the Joint Equipment Characteristics Database in accordance with DoD standard data elements within the Transportation Logical Data Model.

5.5.4.9. Conduct force deployability assessments for proposed acquisition category (ACAT) I and II systems, and for ACAT III systems if deemed necessary by the appropriate mode transportability agent(s), for consideration no later in the acquisition cycle than the System Development and Demonstration phase.

5.5.4.10. Provide a permanent secretariat for the DoD Engineering for Transportability and Deployability Program for administrative continuity and record keeping.

5.5.4.11. Provide modeling and simulation capabilities and transportability and deployability engineering expertise to support the VPG and other initiatives using computer-aided design/computer-aided engineering methodologies in support of the DoD Engineering for Transportability and Deployability Program.

5.5.5. Ensure the Commander, U.S. Army Soldier Systems Center (Natick), shall:

5.5.5.1. Provide rotary and/or tilt-wing aircraft sling load design guidance for materiel developers.

5.5.5.2. Develop, review, and certify procedures for external transport of equipment by rotary and/or tilt-wing aircraft for all DoD Components, and internal transport of equipment by Army rotary and/or tilt-wing aircraft.

5.5.5.3. Provide airdrop design guidance to materiel developers.

5.5.5.4. Develop or reviews airdrop-rigging procedures and certifies S/E for airdrop for the appropriate DoD Component and/or mode transportability agent or the designating agency.

5.6. The Secretary of the Navy shall:

5.6.1. Ensure the Commander, Naval Supply Systems Command, shall:

5.6.1.1. Coordinate with the appropriate mode transportability agents to resolve transportability issues that affect Navy materiel systems.

5.6.1.2. Serve as the Navy's Component Transportability Agent.

5.6.2. Ensure the Commander, Military Sealift Command, shall:

5.6.2.1. Provide sealift transportability analysis to the requesting component for military systems requiring transport on Navy and merchant cargo vessels.

5.6.2.2. Serve as the Ocean Mode Transportability Agent.



5.6.2.3. Coordinate DoD transportability interest in common-user ship construction and modification programs with appropriate Federal and DoD Components, and integrates the needs of the DoD Components into these programs.

5.6.2.4. Coordinate the ocean transportation portion of the Navy's Engineering for Transportability and Deployability Program.

5.6.3. Ensure that the Commandant of the Marine Corps empowers the Commander, Marine Corps Systems Command, to:

5.6.3.1. Serve as the Marine Corps Component Transportability Agent.

5.6.3.2. Execute the Marine Corps Engineering for Transportability and Deployability Program, obtain mode-specific transportability certifications from Component Transportability Agents, and review the transportability section of capabilities documents, specifications, and other appropriate materiel requirements documents.

5.6.3.3. Furnish the SDDCTEA with the transportability characteristic data for all Marine Corps equipment and notify the SDDCTEA of changes in equipment dimensions or weight.

5.7. The Secretary of the Air Force shall ensure the Commander, Air Force Materiel Command:

5.7.1. Coordinates DoD transportability interests in common-user aircraft construction and modification programs with appropriate Federal and DoD Components and integrate the foreseen needs of the DoD Components into these programs.

5.7.2. Serves as both the Air Force's component and Airlift Mode Transportability agent.

5.7.3. Oversees the Air Force Engineering for Transportability and Deployability Program.

5.7.4. Ensures transportability criteria are published in the DoD Deskbook for Air Force System Program Managers' use in the development or modification of Air Force systems and equipment.

5.7.5. Provides technical support through the Engineering Directorate, Flight Systems Division, Air Transportability Test Loading Agency for air transportability

certification and airdrop Proposed Test Plan approvals for Air Force aircraft to the appropriate component and/or mode transportability agent(s) or the designated development agency.

5.8. The Chairman of the Joint Chiefs of Staff, shall ensure coordination with appropriate Combatant Commands to help resolve transportability and deployability issues that affect the theater commander's ability to move personnel and materiel in support of a war or contingency plan.

5.9. The Commander, U.S. Transportation Command, through the Chairman of the Joint Chiefs of Staff, shall provide recommendations on DoD transportation and deployment interests so that these interests can be considered in defense common-user transport construction and modification programs.

## 6. PROCEDURES

6.1. The concept of developing efficiently and economically transportable equipment and combat resources shall be an integral part of the DoD acquisition process.

6.2. All DoD Components shall ensure that transportability and deployability are a major consideration in the following:

6.2.1. The acquisition of all types of developmental systems, rebuys of fielded systems, modified materiel, or non-developmental items.

6.2.2. The acquisition of all systems defined as transportability problem items (see enclosure 1).

6.2.3. The procurement or modification of defense transportation systems.

6.2.4. The modification of force design.

6.3. The component combat developers and/or user representatives, in coordination with component materiel developers and the component and/or mode transportability agent(s), shall include clear and definitive transportability and, when appropriate, deployability requirements, in materiel requirements documents. (This shall include requirements for strategic transport (highway, rail, ocean shipping, and U.S. Air Force and Civil Reserve Air Fleet aircraft) and tactical transport (internal airlift, low and/or high-velocity airdrop, internal and/or external lift by rotary/tilt-wing aircraft, landing craft, and amphibious shipping).)

6.4. Component mode transportability agents shall conduct a force deployability assessment for proposed acquisition category ACAT I and II systems no later in the acquisition cycle than the System Development and Demonstration phase. (This assessment shall analyze the effect of the new system on the available transportation assets and the time required to deploy the gaining units. If the mode transportability agent deems necessary, force deployability assessments may be conducted for ACAT III systems. The mode transportability agent and the user representative shall determine the scope of the deployability analysis on a system-by-system basis.)

6.5. The component materiel developers and combat developers and/or user representatives shall coordinate transportability and deployability issues with the appropriate mode transportability agent(s).

6.6. The component materiel developers shall request approval for S/E that qualify as transportability problem items (see enclosure 1) from the appropriate mode transportability agent(s) at least 90 days prior to Milestone C.

6.7. The component mode transportability agents shall analyze and approve all S/E that qualify as transportability problem items (see enclosure 1) before Milestone C.

6.8. The component user representatives, materiel developers, testers, evaluators, and logisticians shall maintain a liaison with the mode transportability agents and each other to assure consideration and accomplishment of transportability and deployability requirements.

6.9. The component user representatives, materiel developers, testers, evaluators, and logisticians shall forward correspondence concerning transportability policy, regulations, transportability reports, requests for transportability approvals, and technical and operational matters pertaining to the day-to-day operations of the Engineering for Transportability and Deployability Program to the appropriate component and/or mode transportability agent(s).

6.10. The component materiel developers shall submit requests to the Director, SDDCTEA, Attn: SDTE-DPE, 720 Thimble Shoals Blvd., Suite 130, Newport News, VA 23606-4537, for approval by the AAR of loading drawings for inclusion in the AAR "Rules Governing the Loading of Commodities on Open Top Cars."

6.11. The component and mode transportability agents and component user representatives and materiel developers shall obtain transportability engineering and design assistance and safety of flight air worthiness approval (certification) from Aeronautical Systems Center (ASC/ENFC), Attn: ATTLA, 2530 Loop Road West, WPAFB, OH 45433-7101 for:

6.11.1. Transportability problem items to be airlifted inside U.S. Air Force (USAF) prime mission cargo aircraft.

6.11.2. All cargo and equipment to be airdropped from USAF prime mission cargo aircraft using non-standard components or procedures.

6.12. The component and mode transportability agents and component user representatives and materiel developers shall obtain engineering and design assistance, and certification from the Director, U.S. Army Soldier Systems Center (Natick), Kansas Street, Natick, MA 01760, for materiel to be:


6.12.1. Airdropped from fixed-wing aircraft (Attn: AMSSB-RAD-D(N)).

6.12.2. Internally or externally transported by rotary/tilt-wing aircraft (Attn: AMSSB-RAD-D(N)).

6.12.3. Mounted in DoD standard rigid-wall shelters as shown in the Joint Committee on Tactical Shelters (JOCOTAS) Brochure entitled "DoD Standard Family of Tactical Shelters" (Attn: AMSSB-RCP(N)). (The JOCOTAS must approve the use of non-standard shelters.)

7. EFFECTIVE DATE

This Instruction is effective immediately.



Paul Wolfowitz  
Deputy Secretary of Defense

Enclosures - 2

E1. Definitions

E2. DoD Component Transportability Points of Contact

## E1. ENCLOSURE 1

### DEFINITIONS

E1.1.1. Capabilities Document. The document that details the minimum acceptable operational requirement for the S/E.

E1.1.2. Combat Developer. An organization within a DoD Component responsible for formulating operational doctrine and concepts, force and unit organization, and S/E requirements.

E1.1.3. Component Transportability Agent. The office within each DoD Component that has primary responsibility for transportability and deployability matters.

E1.1.4. Defense Transportation System. That portion of the global transportation infrastructure that supports DoD common-user transportation needs across the range of military operations. It consists of those common-user military and commercial assets, services, and systems organic to, contracted for, or controlled by the Department of Defense. Also called the "DTS."

E1.1.5. Deployability. The ability to move forces and materiel anywhere in the world in support of a military operation.

E1.1.6. DoD Transport System. Organic transportation assets (trucks, trailers, ships, aircraft, railcars, tugs, barges, containers, etc.) planned and acquired for use in the peacetime and mobilization movement of DoD materiel, equipment, and units.

E1.1.7. Evaluator. The organization within each DoD Component that assesses whether the S/E meets the user representative's requirements based on the tester's test reports.

E1.1.8. Force Deployability Assessment. An assessment that determines the impact of an S/E's proposed design characteristics on the receiving unit or force's ability to meet current and future deployment criteria using existing and future deployment assets.

E1.1.9. Mode Transportability Agent. The office within each DoD Component that has primary responsibility for transportability and deployability matters associated with one mode of transport (land, ocean, or airlift).

E1.1.10. Materiel Developer. An organization within a DoD Component responsible for research and development and production validation of an item.

E1.1.11. Systems and Equipment (S/E). All items and item components necessary for the equipment, maintenance, operation, and support of military activities, without distinction of their application for administrative or combat purposes, excluding ships.

E1.1.12. Tester. An organization within a DoD Component that is responsible for testing S/E under simulated or actual operational conditions.

E1.1.13. Transportability. The inherent capability of an item or system to be effectively and efficiently moved by required transportation assets and modes.

E1.1.14. Transportability Problem Item. S/E that meet any of the following conditions are defined as transportability problem items and should be coordinated with the appropriate mode transportability agent:

E1.1.14.1. The item is wheeled or tracked, and is to be towed, hauled or self-propelled on or off highway.

E1.1.14.2. The item increases the physical characteristics of the designated transport assets.

E1.1.14.3. The item requires special handling or specialized loading procedures.

E1.1.14.4. The item has inadequate ramp clearance for ramp inclines of 15 degrees.

E1.1.14.5. The item exceeds any of the following conditions:

E1.1.14.5.1. Length - 20 feet (6096 mm, 240 in).

E1.1.14.5.2. Width - 8 feet (2438 mm, 96 in).

E1.1.14.5.3. Height - 8 feet (2438 mm, 96 in).

E1.1.14.5.4. Weight - 10,000 pounds (4,535 kg).

E1.1.14.5.5. Weight per linear foot - 1,600 pounds/foot (726 kg/m).

E1.1.14.5.6. Floor contact pressure - 50 psi (344.7 kpa).

E1.1.15. User Representative. An organization that generates requirements for S/E.



## E2. ENCLOSURE 2

### DoD COMPONENT AND MODE TRANSPORTABILITY POINTS OF CONTACT

#### E2.1. GENERAL

Table E2.T1. identifies the offices with primary transportability and deployability engineering responsibility within each of the DoD Components. Table E2.T2. identifies the Mode Transportability Agents and their associated DoD Component. The information in this section, along with phone numbers, email addresses, and the names of the points of contact shall be continuously updated at <http://www.tea.army.mil/dpe/index.htm> on the Internet.

Table E2.T1. DoD Component Offices with Primary Transportability and Deployability Engineering Responsibility

DoD Component	Primary Agency within DoD Component	Subordinate to Primary Agency	Component Transportability Agent
USA	DCS G-4	DALO-FPM	SDDC
USN		NAVSUP (4D)	NAVTRANS
USMC	MARCORSYSCOM	GTES	GTES
USAF	SAF/AQ	AFMC/LGT	AFMC-LGTT
DLA		DSCC DSCR DSCP DESC	DSCC-OT DSCR-TC DSCP-OMR DESC-BI

Table E2.T2. DoD Mode Transportability Agents

DoD Component	Mode Transportability Agents
USA	SDDCTEA (land)
USN	COMSC (ocean)
USAF	AFMC (airlift)

#### E2.2. ADDRESSES FOR DoD COMPONENT TRANSPORTABILITY AGENTS LISTED IN TABLE E2.T1., ABOVE

E2.2.1. Department of Defense and Department of the Army: Commander, Surface Deployment and Distribution Command, 200 Stovall St., Hoffman Bldg. II, Alexandria, VA 22332-5000.

E2.2.2. Department of the Navy: Commanding Officer, Naval Transportation Support Center (SUP 4D), 1837 Morris Street, Norfolk, VA 23511-3492.

E2.2.3. Marine Corps: MARCORSYSCOM, Attn: Transportation Officer, Ground Transportation & Engineering Systems, 2200 Lester Street, Quantico, VA 22134-5080.

E2.2.4. Department of the Air Force: HQ AFMC/LGTT, 4375 Chidlaw Road, Suite 6, Wright-Patterson AFB, OH 45433-5006.

E2.2.5. Defense Logistics Agency:

E2.2.5.1. Defense Supply Center Richmond, Attn: DSCR-TC, Richmond, VA 23297.

E2.2.5.2. Defense Supply Center Philadelphia, Attn: DSCP-PMT, 700 Robbins Ave., Philadelphia, PA 19111.

E2.2.5.3. Defense Supply Center Columbus, Attn: DSCC-OT, Box 3990, Columbus, OH 43216.

E2.2.5.4. Defense Energy Support Center, Attn: DESC-BI, 8725 John J. Kingman Road, Ft. Belvoir, VA 22060.

E2.3. ADDRESSES FOR DoD MODE TRANSPORTABILITY AGENTS LISTED IN TABLE E2.T2., ABOVE

E2.3.1. Land: Director, SDDCTEA, Attn: SDTE-DPE, 720 Thimble Shoals Blvd., Suite 130, Newport News, VA 23606-4537.

E2.3.2. Ocean: Commander, Military Sealift Command, Attn: N7, 914 Charles Morris Court, SE, Washington Navy Yard, Washington, DC 20398-5540.

E2.3.3. Airlift: Department of the Air Force: HQ AFMC/LGTT, 4375 Chidlaw Road, Suite 6, Wright-Patterson AFB, OH 45433-5006.